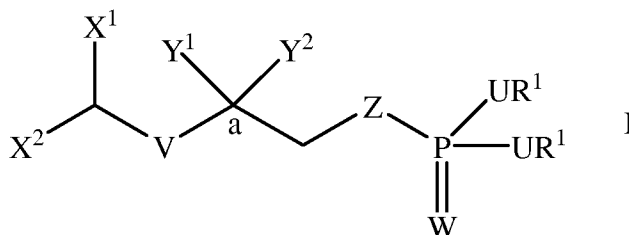


LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A compound having the formula I



wherein

X¹, X², Y¹, and Y² comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C₁ to C₂₅ alkyl group, OR², OCH₂CH₂OR², OC(O)R³, or NC(O)R³;

each U comprises, independently, oxygen, sulfur, or NR¹;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR¹, CH₂, CHF, CF₂, or CHOR²;

each R¹ comprises, independently, hydrogen, a branched or straight chain C₁ to C₂₅ alkyl group, a cationic counterion, or both R¹ form a cyclic or heterocyclic group;

R² comprises hydrogen, a branched or straight chain C₁ to C₂₅ alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

R³ comprises a branched or straight chain C₁ to C₂₅ alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or ~~the~~ a pharmaceutically acceptable salt or ester thereof,

wherein when Y¹ and Y² are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate, and

wherein when V is not present, W is oxygen, X¹ and Y¹ are hydrogen, and X² is hydroxyl, then Y² is not hydroxyl.

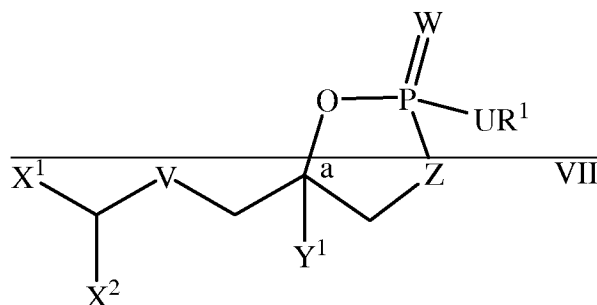
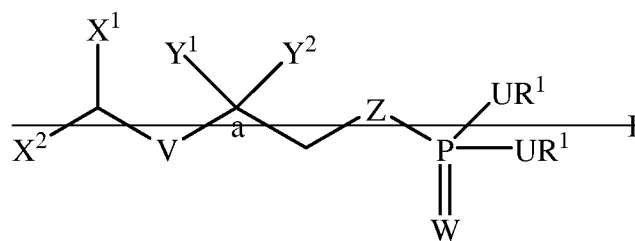
2. (Original) The compound of claim 1, wherein each U and W comprises oxygen and V is not present.
3. (Withdrawn) The compound of claim 2, wherein Z comprises oxygen, X¹ comprises hydrogen, and X² comprises fluorine.
4. (Withdrawn) The compound of claim 3, wherein Y¹ comprises hydrogen, Y² comprises OC(O)R³, wherein R³ comprises a branched or straight chain C₁ to C₂₅ alkyl group, and R¹ comprises hydrogen.
5. (Canceled)
6. (Original) The compound of claim 2, wherein Z comprises oxygen, Y¹ comprises hydrogen, and Y² comprises fluorine.
7. (Withdrawn) The compound of claim 6, wherein X¹ comprises hydrogen, X² comprises OC(O)R³, wherein R³ comprises a branched or straight chain C₁ to C₂₅ alkyl group, and each R¹ comprises hydrogen.
8. (Original) The compound of claim 2, wherein Z comprises CHF, Y¹ comprises hydrogen, and Y² comprises a hydroxyl group.
9. (Withdrawn) The compound of claim 8, wherein X¹ comprises hydrogen, X² comprises OC(O)R³, wherein R³ comprises a branched or straight chain C₁ to C₂₅ alkyl group, and each R¹ is hydrogen.
10. (Canceled)
11. (Withdrawn) The compound of claim 8, wherein X¹ comprises hydrogen, X² is OC(O)R³, wherein R³ comprises a branched or straight chain C₁ to C₂₅ alkyl group, and each R¹ comprises ethyl.
12. (Canceled)

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13. (Withdrawn) The compound of claim 2, wherein Z comprises CHF, Y¹ comprises hydrogen, and Y² comprises an alkyl group.
14. (Withdrawn) The compound of claim 13, wherein X¹ comprises hydrogen, X² comprises a silyl group, a hydroxyl group, or OC(O)R³, wherein R³ comprises a branched or straight chain C₁ to C₂₅ alkyl group, and each R¹ comprises ethyl or each R¹ comprises hydrogen.
15. (Withdrawn) The compound of claim 2, wherein Z comprises CHF, Y¹ comprises hydrogen, and Y² comprises an OC(O)R³, wherein R³ comprises a branched or straight chain C₁ to C₂₅ alkyl group.
16. (Canceled)
17. (Withdrawn) The compound of claim 2, wherein Z comprises CF₂.
18. (Withdrawn) The compound of claim 17, wherein Y¹ comprises hydrogen, Y² comprises OC(O)R³, wherein R³ comprises a branched or straight chain C₁ to C₂₅ alkyl group, and each R¹ comprises an ethyl group or a sodium ion.
19. (Withdrawn) The compound of claim 18, wherein X¹ comprises hydrogen and X² comprises OH or OC(O)R³, wherein R³ comprises a branched or straight chain C₁ to C₂₅ alkyl group.
20. (Withdrawn) The compound of claim 17, wherein X¹ comprises hydrogen, X² is OC(O)R³, wherein R³ comprises a branched or straight chain C₁ to C₂₅ alkyl group, and each R¹ comprises an ethyl group or a sodium ion.
21. (Withdrawn) The compound of claim 20, wherein Y¹ comprises hydrogen and Y² comprises OH or OC(O)R³, wherein R³ comprises a branched or straight chain C₁ to C₂₅ alkyl group.

Claims 22-72 Cancelled

73. (Withdrawn-currently amended) A method for improving wound healing in a subject in need of such improvement, comprising contacting the wound of a mammal with a compound of claim 1. ~~having the formula I or VII or a pharmaceutical composition thereof~~



wherein

X^1 , X^2 , Y^1 , and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_4 -to- C_{25} -alkyl group, OR^2 , $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1 ;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1 , CH_2 , CHF , CF_2 , or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_4 -to- C_{25} -alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

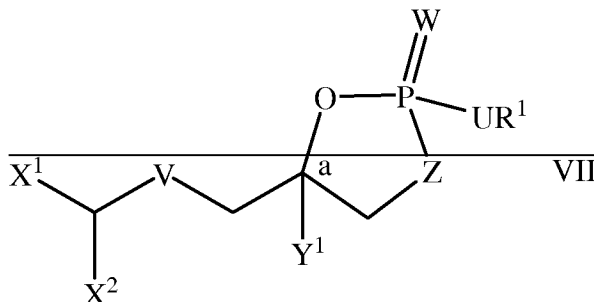
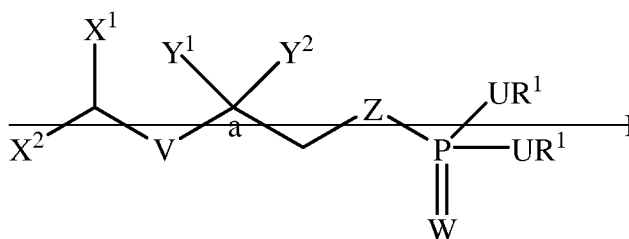
R^2 comprises hydrogen, a branched or straight chain C_4 -to- C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

R^3 comprises a branched or straight chain C_4 -to- C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and
wherein the compound having the formula I is not 1-acyl *sn*-glycerol 3-phosphate and 2-acyl *sn*-glycerol 3-phosphate.

74. (Withdrawn-currently amended) A method for treating or preventing in a subject a disease comprising administering to the subject a compound of claim 1, having the formula I or VII or a pharmaceutical composition thereof



wherein

X^1 , X^2 , Y^1 , and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} -alkyl group, OR^2 , $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^4 ;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^4 , CH_2 , CHF , CF_2 , or $CHOR^2$;

~~each R¹ comprises, independently, hydrogen, a branched or straight chain C₁ to C₂₅-alkyl group, a cationic counterion, or both R¹ form a cyclic or heterocyclic group;~~

~~R² comprises hydrogen, a branched or straight chain C₁ to C₂₅-alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;~~

~~R³ comprises a branched or straight chain C₁ to C₂₅-alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,~~

~~— or the pharmaceutically acceptable salt or ester thereof,~~

~~wherein when Y¹ and Y² in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S,~~

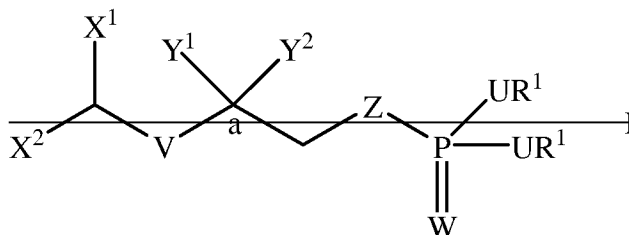
~~wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate, and~~

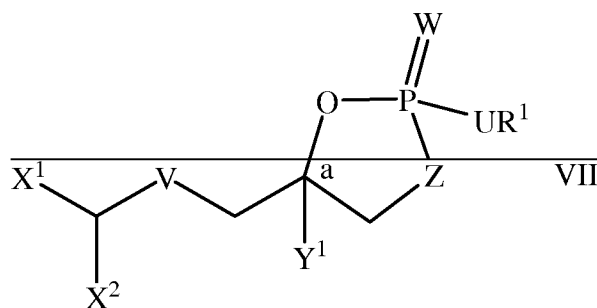
~~wherein with formula VII, when W is oxygen, V is not present, X¹ and Y¹ are hydrogen, and X² is OC(O)R³, then Z is not CH₂ or oxygen.~~

75. (Withdrawn) The method of claim 74, wherein the disease comprises cancer or diabetes.

76. (Canceled)

77. (Withdrawn-currently amended) A method for reducing inflammation or an allergic response in a subject comprising administering to the subject a compound of claim 1.
~~having the formula I or VII or a pharmaceutical composition thereof~~





wherein

X^1 , X^2 , Y^1 , and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 -to- C_{25} -alkyl group, OR^2 , $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1 ;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1 , CH_2 , CHF , CF_2 , or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 -to- C_{25} -alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 -to- C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

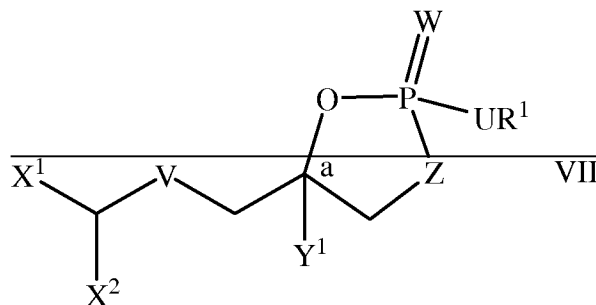
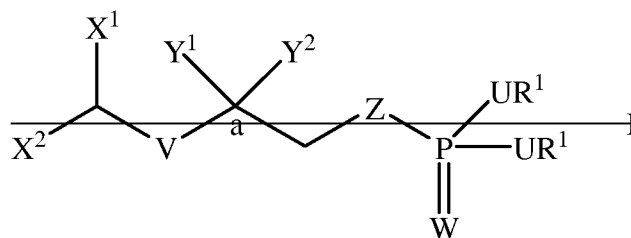
R^3 comprises a branched or straight chain C_1 -to- C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

78. (Withdrawn-currently amended) A method for increasing or altering cardiovascular function in a subject comprising administering to the subject a compound of claim 1, ~~having the formula I or VII or a pharmaceutical composition thereof~~



wherein

X^1 , X^2 , Y^1 , and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 -to- C_{25} -alkyl group, OR^2 , $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1 ;

V is not present or when V is present, V comprises oxygen or sulfur;

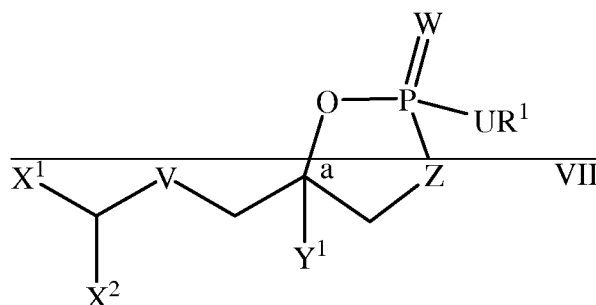
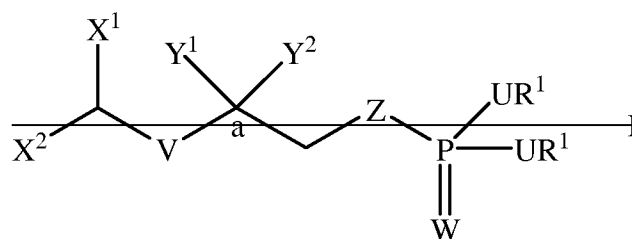
W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1 , CH_2 , CHF , CF_2 , or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 -to- C_{25} -alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 -to- C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

- R^3 comprises a branched or straight chain C_4 to C_{25} alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,
~~or the pharmaceutically acceptable salt or ester thereof,~~
 wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and
 wherein the compound having the formula I is not 1-acyl *sn*-glycerol 3-phosphate and 2-acyl *sn*-glycerol 3-phosphate.
79. (Withdrawn-currently amended) A method for maintaining or terminating embryonic development in a subject comprising administering to the subject a compound of claim 1.
~~having the formula I or VII or a pharmaceutical composition thereof~~



wherein

X^1 , X^2 , Y^1 , and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_4 to C_{25} alkyl group, OR^2 , $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;
 each U comprises, independently, oxygen, sulfur, or NR^4 ;
 V is not present or when V is present, V comprises oxygen or sulfur;

~~W comprises oxygen or sulfur;~~

~~Z comprises oxygen, sulfur, NR^1 , CH_2 , CHF , CF_2 , or CHOR^2 ;~~

~~each R^1 comprises, independently, hydrogen, a branched or straight chain C_4 to C_{25} -alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;~~

~~R^2 comprises hydrogen, a branched or straight chain C_4 to C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;~~

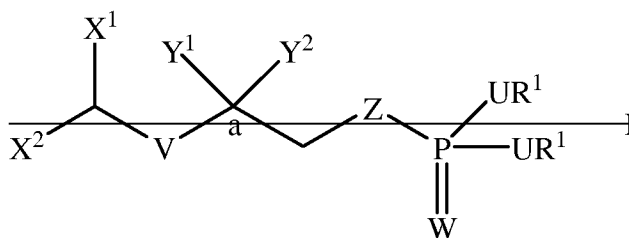
~~R^3 comprises a branched or straight chain C_4 to C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group;~~

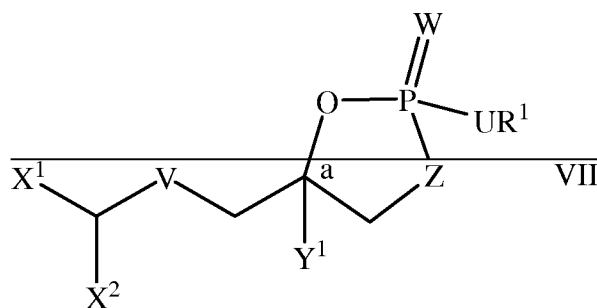
~~or the pharmaceutically acceptable salt or ester thereof;~~

~~wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and~~

~~wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.~~

80. (Withdrawn-currently amended) A method for eliciting or inhibiting platelet aggregation in a subject comprising administering to the subject a compound of claim 1, ~~having the formula I or VII or a pharmaceutical composition thereof~~





wherein

X^1 , X^2 , Y^1 , and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 -to- C_{25} -alkyl group, OR^2 , $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1 ;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1 , CH_2 , CHF , CF_2 , or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 -to- C_{25} -alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 -to- C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

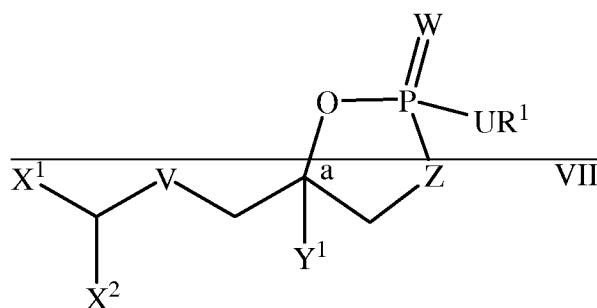
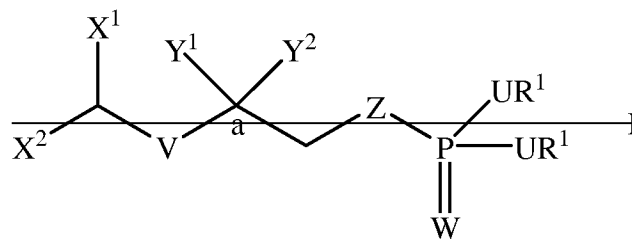
R^3 comprises a branched or straight chain C_1 -to- C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

— or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

81. (Withdrawn-currently amended) A method for increasing or inhibiting cell growth and proliferation in a culture comprising contacting the cells in the culture with a compound of claim 1. ~~having the formula I or VII or a pharmaceutical composition thereof~~



wherein

X^1 , X^2 , Y^1 , and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_1 to C_{25} -alkyl group, OR^2 , $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1 ;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1 , CH_2 , CHF , CF_2 , or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} -alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_4 to C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

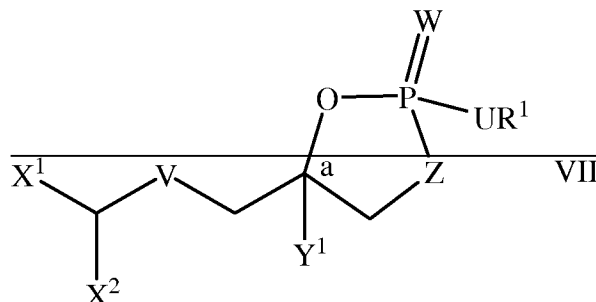
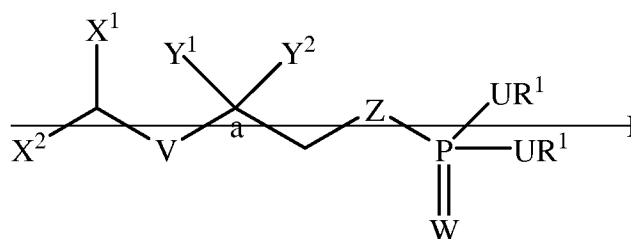
R^3 comprises a branched or straight chain C_4 to C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

— or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

82. (Withdrawn-currently amended) A method of treating or preventing a disease in a subject comprising administering a compound having the formula I or VII or a pharmaceutical composition of claim 1 thereof as a PPAR γ agonist.



wherein

~~X¹, X², Y¹, and Y² comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C₁ to C₂₅-alkyl group, OR², OCH₂CH₂OR², OC(O)R³, or NC(O)R³;~~

~~each U comprises, independently, oxygen, sulfur, or NR¹;~~

~~V is not present or when V is present, V comprises oxygen or sulfur;~~

~~W comprises oxygen or sulfur;~~

~~Z comprises oxygen, sulfur, NR¹, CH₂, CHF, CF₂, or CHOR²;~~

~~each R¹ comprises, independently, hydrogen, a branched or straight chain C₁ to C₂₅-alkyl group, a cationic counterion, or both R¹ form a cyclic or heterocyclic group;~~

~~R² comprises hydrogen, a branched or straight chain C₁ to C₂₅-alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;~~

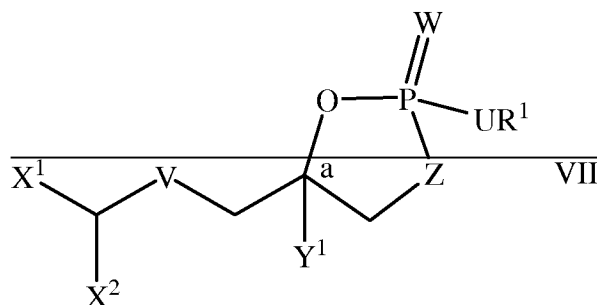
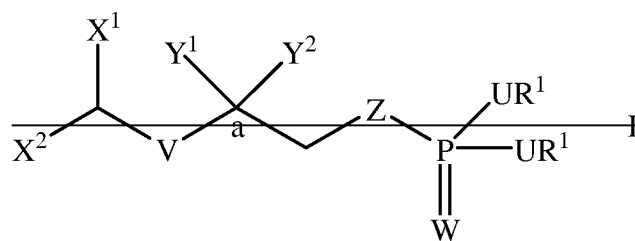
~~R³ comprises a branched or straight chain C₁ to C₂₅-alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,~~

~~or the pharmaceutically acceptable salt or ester thereof,~~

~~wherein when Y¹ and Y² in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and~~

~~wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.~~

83. (Withdrawn-currently amended) A method of treating or preventing a disease in a subject comprising administering a compound having the formula I or VII or a pharmaceutical composition thereof of claim 1 to inhibit a lipid phosphatase, lipid kinase, or phospholipase enzyme.



wherein

X^1 , X^2 , Y^1 , and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_4 to C_{25} -alkyl group, OR^2 , $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1 ;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1 , CH_2 , CHF , CF_2 , or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_4 to C_{25} -alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

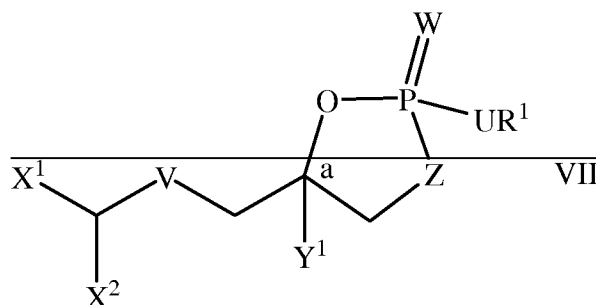
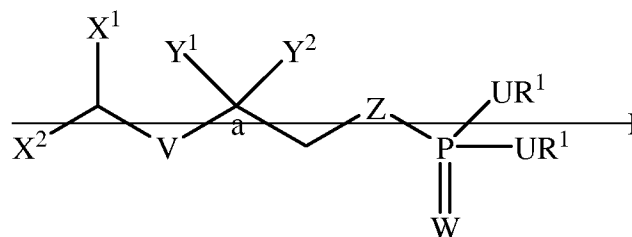
R^2 comprises hydrogen, a branched or straight chain C_4 to C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

R^3 comprises a branched or straight chain C_4 to C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

— or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and
wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

84. (Withdrawn-currently amended) The use of a compound of claim 1 having the formula I or VII or a pharmaceutical composition thereof for targeting the discovery of a drug.



wherein

X^1 , X^2 , Y^1 , and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_4 to C_{25} alkyl group, OR^2 , $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1 ;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1 , CH_2 , CHF , CF_2 , or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_1 to C_{25} -alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_1 to C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

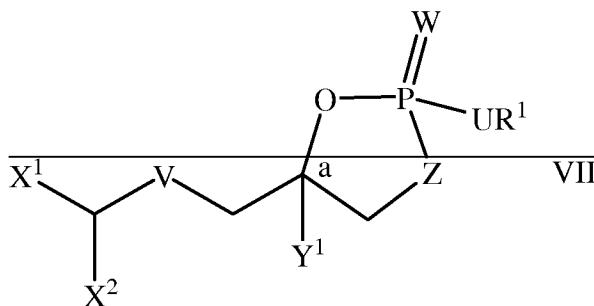
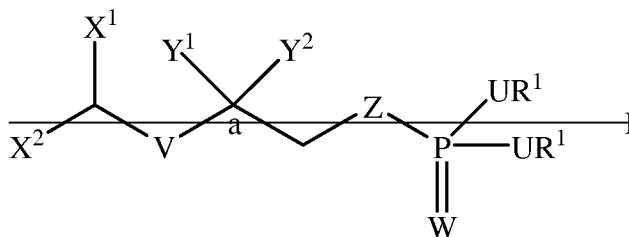
R^3 comprises a branched or straight chain C_1 to C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

— or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

85. (Withdrawn-currently amended) A method for growing or proliferating cells in a culture comprising administering to the cells in the culture a compound of claim 1, having the formula I or VII or a pharmaceutical composition thereof



wherein

X^1 , X^2 , Y^1 , and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_4 -to- C_{25} -alkyl group, OR^2 , $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1 ;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1 , CH_2 , CHF , CF_2 , or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_4 -to- C_{25} -alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_4 -to- C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

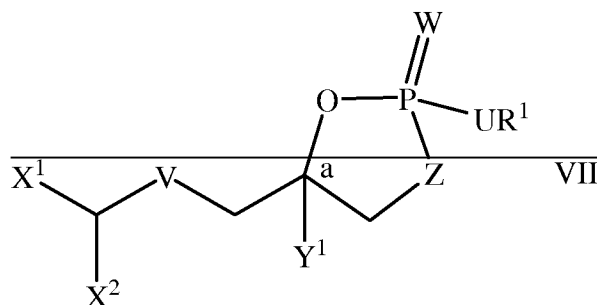
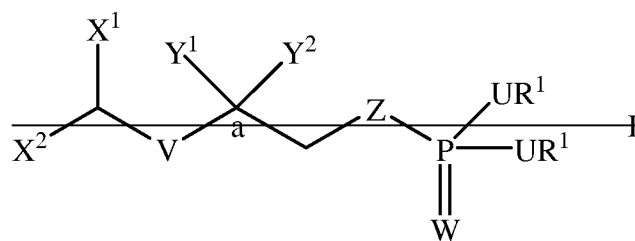
R^3 comprises a branched or straight chain C_4 -to- C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

— or the pharmaceutically acceptable salt or ester thereof,

wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and

wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate.

86. (Withdrawn-currently amended) A method for determining the activity of lysophosphatidic acid or phosphatidic acid, comprising the steps of:
- a) measuring the activity of a compound of claim 1 having the formula I or VII



wherein

X^1 , X^2 , Y^1 , and Y^2 comprises, independently, hydrogen, fluorine, a hydroxyl group, a branched or straight chain C_4 -to- C_{25} -alkyl group, OR^2 , $OCH_2CH_2OR^2$, $OC(O)R^3$, or $NC(O)R^3$;

each U comprises, independently, oxygen, sulfur, or NR^1 ;

V is not present or when V is present, V comprises oxygen or sulfur;

W comprises oxygen or sulfur;

Z comprises oxygen, sulfur, NR^1 , CH_2 , CHF , CF_2 , or $CHOR^2$;

each R^1 comprises, independently, hydrogen, a branched or straight chain C_4 -to- C_{25} -alkyl group, a cationic counterion, or both R^1 form a cyclic or heterocyclic group;

R^2 comprises hydrogen, a branched or straight chain C_4 -to- C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group or a protecting group;

R^3 comprises a branched or straight chain C_4 -to- C_{25} -alkyl group, a cycloalkyl group, a heterocycloalkyl group, an aryl group, a heteroaryl group,

— or the pharmaceutically acceptable salt or ester thereof,

~~wherein when Y^1 and Y^2 in formula I are different groups, the stereochemistry at carbon a is either substantially R or substantially S, and
wherein the compound having the formula I is not 1-acyl-*sn*-glycerol 3-phosphate and 2-acyl-*sn*-glycerol 3-phosphate; and~~

- b) measuring the same activity of lysophosphatidic acid or phosphatidic acid.
87. (Withdrawn) The method of claim 86, wherein the method comprises identifying agonists or antagonists of lysophosphatidic acid binding to or activating lysophosphatidic acid receptors of the edg class in a cell.
88. (Withdrawn) The method of claim 86, wherein the method comprises identifying agonists or antagonists of lysophosphatidic acid binding to or activating lysophosphatidic acid receptors of the non-edg class in a cell.